MEDIBEATS
The Medical Bulletin

ECG Excursions

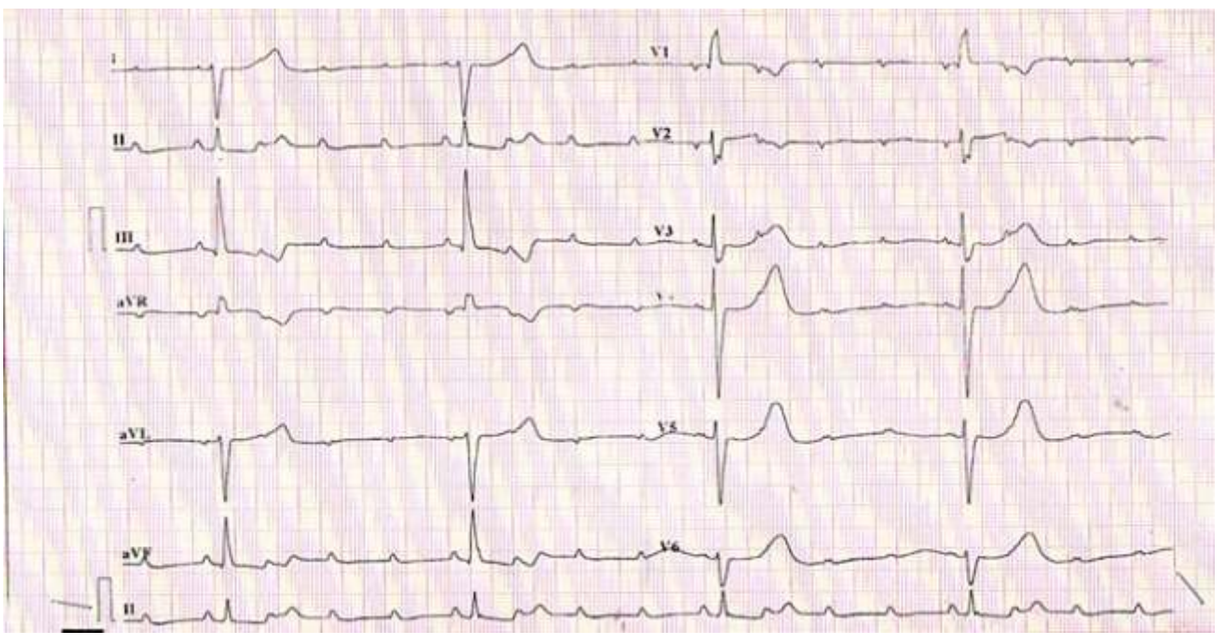
ECG No.9 : This is the ECG of 69 old known hypertensive with recent onset breathlessness. No syncope.

1mv STD;25mm/sec.

1.Describe all ECG changes

2.What is the type of conduction disturbance?

3.What are practical implications ?



ANSWERS TO ECG 9 OF ECG EXCURSION

ECG FINDINGS:

This ECG shows Bradycardia with wide QRS complexes. The atrial rate is about 100 /mt and ventricular rate is about 30 / mt. Whenever atrial rate is more than ventricular rate with bradycardia one should suspect Atrio Ventricular Block (AVB). If two or more successive P waves are blocked, as in this ECG, Complete Heart Block (CHB) or High Degree AVB (HDAVB)

should be suspected. The most important differentiating point between HDAVB and CHB is the presence of complete Atrio Ventricular Dissociation (AVD) which indicates CHB, where there is no fixed relationship between P and QRS throughout the ECG. But in this ECG, there is definite fixed P – QRS relationship (constant PR interval) for all the conducted beats throughout the ECG and in the rhythm strip. So, this is HDAVB where every fourth P wave is conducted to the ventricles with constant PR. In addition, patient has complete RBBB, Left Posterior Fascicular Block (LPFB). So, the only conducting fascicle is Left Anterior Fascicle (LAF) which is also partially blocked as it blocks 3 P waves and conducts only the 4th P wave.

The combination of RBBB, LPFB with partial block in LAF makes it a Trifascicular Block.

The summary of all ECG findings:

1. Bradycardia (Atrial Rate > Ventricular Rate)
2. High Degree AVB with 4:1 conduction
3. RBBB,LPFB,HDAVB-Trifascicular block
4. Broad T with Prolonged QTc (? SA Attack)
5. Probable ALMI
6. Possible Left Atrial Abnormality –
7. In view of breathlessness heart failure is a possibility

CLUE:

Most often this ECG will be diagnosed as CHB.

The Important clue is the absence of AV Dissociation in the presence of fixed PR for conducted beats – which makes it a HDAVB. This patient definitely requires a Permanent Pacemaker Implantation.

Because of the possibility of HF, one should always plan a Dual Chamber Pacemaker as the stiff ventricle needs atrial support. In single chamber pacemaker, there is Atrio Ventricular dissociation where atrium and ventricles are beating independently. So, pacing must include Higher chamber (Atrium).

PRACTICAL IMPLICATION:

In addition to Dual Chamber Pacemaker, patient requires management for CAD and appropriate treatment for HF especially for HF.

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